Sustainable Rundale, Runrig, and Northern English Open-Field Historical Farming Systems: A Comparative Analysis

Mark Gardiner, Liam Downey and Séamas Ó Síocháin

At the heart of all traditional farming systems in Ireland and Britain was the need to operate an agricultural regime with systemic resilience, while optimising the productive sustainability of integrated crop- and livestock-husbandry practices. In other words, the agricultural regime had simultaneously to minimise the risk of crop failure, while seeking to ensure a sufficient return from the farming system as a whole. This was not simply a matter of economics. The farming regime had to operate within the context of the prevailing social systems which influenced the structure of labour, and the ownership and tenure of land. The interaction of agrarian regime and social organisation in different areas produced forms of farming systems which have been variously classified as rundale, runrig, and open-field agriculture in Ireland, Scotland and northern England. These have been largely studied as entirely separate systems.[1]

The present paper, by contrast, seeks to take a comparative approach in order to identify the common underlying factors. It identifies the particular agronomic features of the various farming systems in Ireland and northern Britain to consider how common features might have arisen in these different areas. It proceeds in each section in turn to examine the layout of fields, the methods of crop cultivation, the management of livestock husbandry and land tenure. Case studies are provided to illustrate these features. It is necessary also to acknowledge the problems of a comparative study. The terminology used in the different regions examined has not been applied consistently. Conversely, similar terms may be applied to different practices. To deal with these problems, the elements of the various agricultural regimes have been considering separately and systematically to identify aspects which were common and those which were different. Further to this, it may be noted that this is not a study of the origins of the historic farming systems, but of their form in the eighteenth and nineteenth centuries, a period for which most

[1] Robert A. Dodgshon's *The Origin of British Field Systems*, London, 1980, is a notable exception, although he did not consider the Irish evidence. For an older perspective, see also Buchanan, R.H., 'Field Systems in Ireland', in Baker, A.R.H. and Butlin, R.A. (eds), *Studies of Field Systems in the British Isles*, Cambridge 1973, 580–618.

evidence survives. However, in the section dealing with northern England, it has been both possible and necessary to draw upon sources of an earlier date, because of the gradual disappearance of some features, even before enclosure. We need, therefore, to be on our guard that we are making a proper comparison of similar situations.

The fundamental units which underlay historic farming systems in the three regions considered were known variously as townlands (equivalent to the Irish *baile*), touns and townships.[2] The inhabitants of these units often occupied a single main settlement, which in Ireland has been described by the introduced Scottish term, clachan, in Scotland itself as a toun and in northern England as a hamlet or village. The cultivated land was divided into ridges or rigs which served to distinguish ownership, to give a greater depth of tilth and to drain the planted land into furrows in between. The ridges might be produced by plough or by spade, the former being generally wider than the latter.

1. Irish rundale farming

In the early seventeenth century, much of the farmed landscape of Ireland was characterised by unenclosed, open-field systems.[3] The landscape, especially the more productive areas in eastern counties, was progressively enclosed during that century.[4] In western areas, enclosure took place later, occurring from around the early to mid-nineteenth century. Rundale, one form of marginal farming, is documented in Ireland from around the seventeenth century, especially in the west and north. The evidence for the usage of the system increases sharply in the late eighteenth century, and it was certainly extensively practised in pre-Famine Ireland by communities of small farmers.[5] In recent years, a fuller perspective of the livestock- and crop-production practices involved in rundale agriculture has been developed.[6] It is now possible to summarise the main

[2] Hughes, T.J., 'Town and Baile in Irish place-names', in Glasscock, R. and Stephens, N. (eds), *Irish Geographical Studies in Honour of E. Estyn Evans*, Belfast 1971, 244–258.

[3] Duffy, P.J. *Exploring the History and Heritage of Irish Landscapes*, Dublin 2007, 52–100.

[4] Buchanan, R.H., 'Common Fields and Enclosure: An Eighteenth-Century Example from Lecale, County Down', *Ulster Folklife* 15–16 (1970), 99–118.

[5] For comments on the early references to rundale, see Whelan, K., 'Beyond a Paper Landscape – J. H. Andrews and Irish Historical Geography', in Aalen, F.H.A. and Whelan, K. (eds), *Dublin City and County: From Prehistory to Present: Studies in Honour of J.H. Andrews*, Dublin 1992, 379–424, at 411.

[6] Notable recent studies include, Yager, T, 'What was Rundale and where did it come from?' *Béaloideas* 70 (2002), 153–186; Whelan, K., 'Clachans: Landscape and Life in Ireland before and after the Famine', in Duffy, P.J. and Nolan, W. (eds), *At the Anvil*: *Essays in Honour of William J. Smyth*, Dublin 2012. 453–475; Ó Síocháin, S., Slater, E. and Downey, L. (eds), Rundale: Settlement, Society, and Farming, *Ulster Folklife* 58 (2015); Costello, E., 'Post-medieval Upland Settlements and the Decline of Transhumance: A Case Study from the Galtee mountains, Ireland', *Landscape History* 36 (2015) 47–69; O'Sullivan, M. and Downey, L., 'Post-medieval Farming', *Archaeology Ireland* 32:1 (2018), 26–29.

features ascribed to the rundale system (Table 1) and which was, as further outlined below, a food-crop production system with a closely integrated livestock-grazing component.

The rundale farmland typically involved infield, outfield, and commonage areas, which were generally located within a single townland (Fig. 1). Each of these areas was used for seasonally critical purposes within the annual farming cycle. Food crops were cultivated in the infield areas; summer grazing was undertaken on the commonages, and most of the livestock may

Table 1 – Features of rundale farming	
Layout	Infield, outfield, and commonage areas Settlement cluster(s)
Crop cultivation	Infield – dispersed, intermixed strips Some crop rotation and fallowing Periodic reallocation of plots Drawing of lots for plots Outfield portions periodically cultivated
Livestock Husbandry	Summer grazing on commonages Post-harvesting stubble grazing Outwintering in the outfields Grazing restricted in many areas
Land tenure	Communal tenancy

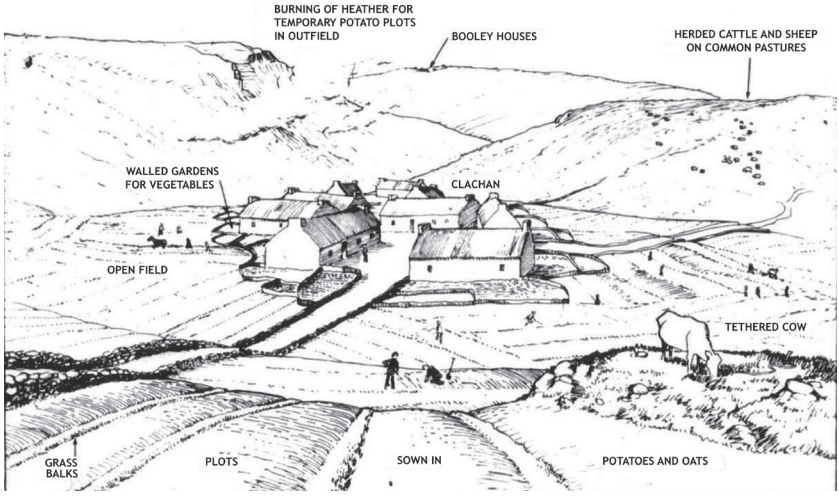

Figure 1. Illustration of an idealised rundale townland (source: the late Jonathan Bell).

have been outwintered in the outfield areas. The farming communities lived mainly in settlement clusters of farm houses with some outbuildings. These settlements, which are sometimes referred to as *clachans*, were usually located adjacent to the infield areas, and often had individual gardens and haggards alongside the houses.

Crop cultivation

The best available land in rundale farming areas was enclosed in the infield for food-crop production. Parts of the outfield appear to have been cultivated periodically, perhaps for the growing of corn or potatoes. However, given the more marginal nature of land in the outfield, cultivation tended to be of short duration. Remnant tracts of cultivation plots may, in some locations, be found in hilly marginal land, and often at some distance from the settlement.[7]

Maintenance of the fertility of the farmland was a perennial challenge in areas of poor soils and high rainfall. The limited amount of dung available would have been preferentially applied to the land being prepared for cultivation. To maintain the fertility of the infield, it was opened up after harvesting so that livestock returning from summer grazing on commonages could graze the stubble. The outfield may also have received some manuring by dairy cows held overnight following milking

A wide range of manurial substances were availed of over the centuries to maintain, restore, and improve the productivity of farmland.[8] Together with the limited supply of manure available, ashes, seaweed, sea-sand, shells, and coral were widely used in marginal farm areas. Paring and burning of surface vegetation was, as noted by Collins, seen in post-medieval times as the cheapest manure and most effective on many sorts of poor land. Arthur Young reports the practice in the 1770s, and surveys undertaken in Counties Clare and Galway in the early decades of the 1800s underlined the vital importance of the practice in marginal farms in western counties.[9] Burning limestone and applying the lime produced to farmland has been widely practised in Ireland from medieval times.[10] Farm lime kilns existed in their thousands in the Irish countryside in the eighteenth and nineteenth centuries. To counteract the impairment of crop growth by acidic 'soils, common in marginal farming areas, application of lime is a long-established agronomical imperative. In some coastal areas, sea-shells are said to have been burned to produce lime.[11]

Some form of crop rotation and fallowing may have become more widely practised in post-medieval times. In marginal farming lands in western

[7] Corduff, M., 'Rundale in Rossport, Co. Mayo', *Ulster Folklife* 58 (2015), 99–105, at 105–107.
[8] Collins, J.F., *Quickening the Earth: Soil Minding and Mending in Ireland*, Dublin 2008.
[9] Hutton, A. Wollaston (ed.), *Arthur Young's Tour in Ireland (1776–1779),* London 1892*,* 62, 233, 273, etc.
[10] O'Sullivan, M., Downey, L., and Downey, D. (eds), *Antiquities of Rural Ireland*, Dublin 2017, 63–71.
[11] Bell, J. and Watson, M., *A History of Irish Farming, 1750–1950*. Dublin 2009, 78.

Ireland, potatoes and grain, usually oats, were in the 1800s generally cultivated in rotation, and a period of fallow might follow or intervene. Longer rotations were also used. For instance, in the Barony of Raphoe (Co. Donegal), the following infield rotation was practised in or about 1800: (1) potatoes, (2) barley, (3) barley, (4) oats, (5) flax, (6) oats, and (7) manured, and began anew without fallow or grain-crop intervening.[12] Ridge and furrow cultivation, generally termed 'lazy beds' in Ireland, reminiscent of corn production in previous centuries, has been reported in many areas of marginal farmland. They are a striking feature of the farmed landscape on Clare Island, Co. Mayo (Fig. 2), as further detailed by Mac Cárthaigh.[13] The fallowing periods used in

Figure 2. Farm landscape in Clare Island, Co. Mayo (source: photograph by L.E. Klim in National Museum of Ireland, courtesy of Críostóir Mac Cárthaigh).

post-medieval crop rotations in Ireland may have been of longer duration than tends to have been generally understood, as they were in the Scottish runrig system, and also in northern England, detailed below.

Surface drainage involving ridge-and-furrow cultivation was prevalent in medieval and later Ireland. In the 1800s, underfield drains were more widely adopted. While drainage was most common in the main tillage areas, land in marginal farming areas tends to become water-logged and drainage of some form would be required, involving possibly the construction of narrow ridges.[14]

[12] McCourt, D., 'Traditions of Rundale in and around the Sperrin Mountains, *Ulster Journal of Archaeology* third series, 16 (1953), 69–84.
[13] Mac Cárthaigh, C., 'Clare Island Folklife', in Mac Cárthaigh, C. and Whelan, K. (eds), *New Survey of Clare Island. Volume I: History and Cultural Landscape*, Dublin 1999, 49–53.
[14] Corduff, *op. cit.,* 103.

Livestock husbandry

Cattle were of central importance in post-medieval marginal farming, and the grazing of livestock, particularly cattle, was widely practised by rundale farmers.[15] The seasonal movement of livestock in the spring to commonages, and their return in the autumn after the crops had been harvested, was a feature of traditional farming systems in many parts of north-west Europe, and was widely practised in Ireland in the early and later Middle Ages.[16] Transhumance, or booleying, as the practice is generally known in Ireland, was a productive system of utilising tracts of poor-quality land common in marginal farming areas. It was indeed not a single system, but involved a number of related activities connected with the seasonal movement of livestock.[17] The multiple practices involved probably changed over time, especially in the nineteenth and early twentieth centuries, as the uplands were progressively enclosed and settled. Remains of booley huts on hillsides are among its most enduring archaeological remains, few of which have been closely dated (Fig. 3). There is evidence that transhumance, like other aspects of rundale, was a joint practice, not an individual one, and a communal response to the challenges posed by areas of poorer land.

Figure 3. The site of a booley hut in the Mourne Mountains, Co. Down, indicated by one-metre ranging rods. The mound was progressively formed by the accumulation of sods used in the annual reconstruction of the hut.

[15] Downey, L., 'Rundale Farming System: Livestock Rearing and Crop Husbandry', *Ulster Folklife* 58 (2015), 41–51.

[16] Lucas, A. T., *Cattle in Ancient Ireland*, Kilkenny 1988; Gardiner, M., 'The Role of Transhumance within Rundale Agriculture', *Ulster Folklife* 58 (2015), 53–63; Costello, *op. cit.*

[17] Gardiner 2015, *op. cit.,* 57.

Transhumance was not, however, confined to rundale farming. It was, for instance, an important feature of the regional farming economy in the vicinity of the Galtee Mountains in the post-medieval period. Notably, however, Costello points out that the mountain was held as commonage by a number of tenant farmers whose farms consisted of separate holdings. This represents a different form of land holding from the communal system characteristic of rundale farming. Further to this, he states that the 'pre-Famine settlement in the Galtee Mountains was for the most part dispersed, with no obvious separation of infield and outfield'.[18] However, as indicated above, the layout of rundale farmland typically involved infield and outfield areas.

Commonages were the main areas of livestock grazing during the summer months. They comprise diverse tracts of land of low agricultural productivity, including upland and mountainous areas, bog and foreshores.[19] The movement of cattle and sheep to commonages had important agronomical benefits.[20] In addition to protecting the crops being cultivated from livestock predation, it provided more extensive grazing. Moreover, it has long been recognised that livestock left grazing the same ground for protracted periods tended not to thrive. The practice could increase livestock susceptibility to parasite infection, such as liver fluke, especially under wet grazing conditions. In terms of animal nutrition, the livestock also benefited from access to a diverse range of vegetation; in particular the ingestion of plant fibres would have enhanced rumen digestion in livestock.

Outwintering of cattle with other livestock was an integral feature of farming in Ireland well into the mid-1900s. The practice indeed still prevails in some locations, notably the Burren (Co. Clare), as well as other marginal farming areas. Up to recent centuries, few cattle were housed. In rundale farming, the majority of livestock could have been held in the outfield during the winter months. Such outwintering of cattle was common into the twentieth century, mostly in western counties by small farmers.[21] There is, however, a marked paucity of information on the outwintering practices employed in the outfield. Apart from some hay being provided, and perhaps the erection of basic animal shelters, information tends to be quite limited as to how livestock were maintained over the winter, especially during late spring periods. In some areas of western Ireland animals were housed at one end of domestic buildings in what are described as byre-dwellings.[22] Seasonal scarcity of winter fodder is likely to have been a recurring problem in marginal farming. Commenting on the inadequate fodder provision in the late decades of the 1700s, Arthur

[18] Costello, *op. cit.*, 67.
[19] O'Malley Gannon, C., 'Rundale in the Twentieth Century and the Importance of Commonage', *Ulster Folklife* 58 (2015), 109–117; Ó Mongáin, personal communication.
[20] Downey, *op. cit.*, 43–44.
[21] O'Sullivan, M. and Downey, L., 'Archaeology and Farming Practices', *Archaeology Ireland* 23:1 (2005), 31–34.
[22] Ó Danachair, C., 'The Combined Byre-and-Dwelling in Ireland', *Folk Life* 2 (1964), 58–75.

Young observed that the result of this lack of winter provender was that cattle went hungry.[23] Such circumstances may not have been uncommon in marginal farming systems in post-medieval Ireland.

With the lack of fencing in townlands, herding was an everyday occupation. It was the custom around Derry in the early nineteenth century for young boys and sometimes women to watch the cattle on the joint meadows and lea patches in the mornings, after which they drove the cattle to grazing *parks* (enclosures) on the upper side of the settlements.[24] At the same period in some localities in Donegal and Mayo, the whole of the townland involved in rundale farming appears to have been thrown open to the livestock from the end of the harvest to the following spring.[25]

Meadowlands, where they existed, were of particular importance in providing that fodder for the winter months. They were carefully regulated to give each tenant farmer a proportion of hay and grazing, calculated according to his share of the infield.[26] Conditions permitting, meadows could be cut by mid-summer, with the hay providing much-valued winter fodder. The aftergrass was grazed in common, as well as the infield stubble post-harvesting, and, together with some hay, helped to tide the livestock over the winter months. The importance of the meadowland in rundale farming in the 1800s is, as indicated by McCourt, evident from the first-edition Ordnance Survey.[27] The values attached by the surveyors in the townland of Ballynease-MacPeake (Co. Derry) to an acre of meadowland (£1 to 55 shillings) was considerably higher than for the infield strips (10 to 18 shillings per acre). On the land of the Sruchannclogh, the holdings were scattered over land of more pronounced difference in quality, and the valuations ranged from 3 pence per acre on the outfield to 8 or 10 shillings per acre of infield. Meadowland was a highly valued dimension of the three-field farming systems common in Europe in the Middle Ages.[28]

An alternative means to provide sufficient winter foddering was a grazing practice known as 'foggage' which was common in Ireland over a long span of time.[29] Certain areas of land were not grazed in the usual way over the summer and autumn. Instead, pasture growth was allowed to accumulate, which could be likened to standing hay. Given its long history, the practice of holding over grazing during the summer and autumn to provide what was termed 'preserved grass' or 'winter grass' is likely to have been known to farmers engaged in post-medieval marginal farming. It was a low-cost, labour-

[23] Hutton, *op cit.*, 459.
[24] McCourt, D., 'Surviving Openfield in County Londonderry', *Ulster Folklife* 4 (1958), 19–28.
[25] Yager, *op. cit.*, 185; Corduff, *op. cit.,* 102.
[26] McCourt, D., The Rundale System in Ireland: A Study of its Geographical Distribution and Social Relations (unpublished PhD thesis, Queen's University Belfast 1950), 18, 33, 60, 75.
[27] McCourt, *op. cit.* 1953, 80–82.
[28] Simkhovitch, V.G., 'Hay and History', *Political Science Quarterly* 28 (1913), 385–403.
[29] Downey, *op. cit.*, 45.

efficient system that simply required restricted grazing of livestock in land areas set aside for outwintering purposes. Moreover, the manuring by the animals was important in maintaining the fertility of the farmland. Common features of outwintering and foggage practices witnessed by agricultural advisors in the mid-1900s in western counties have recently been recorded.[30]

The maintenance of land fertility and the provision of adequate winter fodder, allied to the control of overgrazing, are imperatives of resilient, sustainable farming systems. Attainment of the appropriate balance between these production dictates was a perennial challenge in post-medieval times, especially in marginal farmland.[31] To manage these interdependent prerequisites, both the livestock grazing and the crop cultivation of farmland were limited using the Gaelic measure of *collop* or *soum*, the latter being the equivalent term originating in Scotland. In his knowledgeable discourse on early Irish farming, O'Loan states that these measurement units of agricultural productivity 'implied an amount of land capable of giving an understood amount of product rather than an area defined by length and breadth'.[32]

In a detailed re-appraisal of the application of these land units in rundale farming in the 1800s, published in *Ulster Folklife*, Slater observed that the collop originally applied to the number of cattle that could be sustainably grazed on the pasture land.[33] The grazing or pasture collop, as it was commonly known, appears to have generally comprised the amount of grass needed to feed a cow, with appropriate equivalents for other livestock. To prevent overgrazing, the system of allocating pasture collops limited the number of animals that each of the tenants could graze, and ultimately**,** that of the entire farming settlement. The number of pasture collops in a holding was essentially a measure of its livestock-carrying capacity. Slater explained that the tillage collop was a later evolution from the original livestock collop; it was supposed to be capable of supporting one family by its produce. The arable land was apparently divided into collops, with individual farmers having a number of tillage collops, as well as pasture collops. Each tenant had the right to graze stock in proportion to his arable acreage. In these circumstances, the tillage collop determined the allocation of pasture collops among the tenant farmers. Notably, this represents a fundamental change in the original concept of rundale farming. It reversed the emphasis in land assessment from one which prioritised livestock to one in which increased emphasis was given to crop cultivation.

Land tenure

Consequent on the overthrow of the Gaelic system in the seventeenth century,

[30] O'Sullivan and Downey, *op. cit.*

[31] Downey, *op. cit.*.

[32] O'Loan, J., 'A History of Early Irish Farming', *Journal of the Department of Agriculture* 62 (1965), 1–67.

[33] Slater, E., 'The 'Collops' of the Rundale', *Ulster Folklife* 58 (2015), 65–74, at 65.

ownership of land was predominantly transferred to English or Anglo-Irish Protestants, with the bulk of the population now their tenants. The following, eighteenth, century was one of increasing commercialization and market expansion, marked by the ideology of 'Improvement', including in the agricultural sphere such features as enclosure, liming, drainage, crop rotations, and stock and crop selection. As population increased, holdings became smaller, with frequent subdivision. Subdivision may have partly derived from the Gaelic system of partible inheritance (by then illegal, yet widely practised), but may also have been, given the limited alternatives, an inevitable survival strategy. No holding was viable without a mixture of arable and pasture and, as a result, subdivision involved allocating patches of each, of equal quality, resulting in significant fragmentation. Moreover, the practice of groups taking on land in partnership or as joint-tenants became commonplace. The resulting farming and social practices (rundale) saw pasture communally regulated and the arable individually cultivated, but with work co-ordinated. Rent payment became a partnership responsibility.[34]

For improving landlords, rundale was irrational and an impediment to progressive farming – it needed to be broken up. Many new leases forbade its practice. Yet, in situations of weak landlord oversight, it continued or emerged. This occurred, for example, in areas of absenteeism, where oversight, often negligent, was by minor gentry, middlemen or agents. It also occurred due to landlord indebtedness, which led to the granting of leases in perpetuity with little prospect of improvement.

Rundale settlement generally took the form of what are variously termed 'farm clusters', 'villages', or 'clachans'. Though invariably described by outside observers as formless, the logic of the system is explained by O'Donnell:

> The clustering of dwellings was the rational response to this system of fragmented holdings. Not only did it minimise overall travel to the various patches of land but also preserved precious arable land for tillage, through the reduction of roads, paths and "streets". Where sub-division of holdings was rife, cluster size and internal kinship networks grew with each generation.[35]

Case study: Erris and Achill, Co. Mayo

The layout of individual rundale farms was largely determined by the local

[34] There are many examples of communities that selected one member to co-ordinate the activities of the annual cycle, to adjudicate in disputes, and to ensure payment of rent when due, see Danaher, K., 'An Rí [The King]: An Example of Traditional Social Organisation', *Journal of Royal Society of Antiquaries of Ireland* 111 (1981), 14–28.

[35] O'Donnell, M., 'Settlement and Society in the Barony of east Inishowen, c. 1850', in Nolan, W., Ronayne, L. and Dunleavy, M. (eds), *Donegal: History and Society*, Dublin 1995, 509–546, at 520; O'Donnell, M., 'Farm Clusters in North-West Inishowen c.1850', *Irish Geography* 26(2) (1993), 101–119.

context. Accordingly, they involved diverse spatial forms, as can be seen from the case studies pertaining to a number of townlands in Erris and Achill (Co. Mayo). These were compiled by Séamus Ó Mongáin, who was an agricultural advisor in the county over a long period.[36] Some important aspects of rundale practices recalled by local informants are summarised below. As noted by Ó Mongáin, it is uncertain as to what period these recollections pertain, but many may relate to the legacy of rundale.

The townland of Portacloy (Port an Chlóidh) had a relatively small area of cultivated infield and outfield, and a vast expanse of mountain commonage. With access to over 3500 acres of wet heath and blanket bog commonage, there is no recollection of any restrictions on the number of livestock grazed. It was a 'free for all'. Landless families within the community were not restricted from acquiring a site for a house or from cutting turf on the commonage, and often improved a small area for cultivation and other household uses.

To maintain fertility, manure from the dung heap, containing animal, fowl, and human excrement, mixed with turf-mould, was used judiciously. Seaweed was also employed, which was brought a considerable distance and often from beneath steep cliffs.

The farmed land in Carrowteige (Ceathrú Thaidhg) townland comprised the outfield. Each farmer cultivated a crop of potatoes, oats, or rye, and saved hay from his allocated *stripe*. The commonage available to the farmers was a small area of machair and dune pasture extending to the foreshore. The grazing on the commonage was subject to a quota or *band* (Ir. *beann*) on livestock numbers, and grazing was restricted to the period from 1 May to 31 October – the two dates between the *gale days*, on which the payments of rents became due.[37] After 31 October, each farmer was entitled to graze a limited number of livestock over the whole area. The animals were often outwintered, with limited supplementary feed, involving some hay or, more recently, silage.

Farming in the townland of Cartoon (An Cartún) involved a number of rundale practices, such as the casting of lots to allocate tillage plots, and also to determine the number of stock that tenants were allowed to graze on the commonage. Gale days determined the commencement and ending of grazing on the outfield and also on the commonage.

Prior to the rearrangement carried out by the Congested Districts Board in the period 1900 to 1910, the townland of Doohooma (Dumha Thuama) was

[36] Séamus Ó Mongáin, n.d. ''Rundale' Farming in Co. Mayo', unpublished manuscript, based on current local knowledge and observations on the operation of the 'Rundale' system of farming as practised by a number of communities in the Erris and Achill areas in County Mayo. Ó Mongáin's great grandfather (James Mongan) was a tenant farmer in the townland of Doohooma (Dumha Thuama), the location of the family farm.

[37] Grazing rights on commonages were regularly restricted and related to the amount of arable held by individual families. Terminology varied with location, collops (*colptha*) and soums being terms commonly used to measure grazing areas. The exercise of rights was monitored by the community.

in three large parcels, as shown in the 1840s map that accompanies the Griffith Valuation. The land to the east of the village was largely farmed in the rundale system by tenants of the village. Tenants farmed their allowed strip or strips, on which potatoes, rye, and oats were cultivated, and winter feed was saved. Where animals had to be grazed on these strips during the growing season, they were tethered. The cluster of houses towards the west of the townland utilised the adjacent parcel of land in a similar manner. On the Doohooma commonage (*machair*), there were strict restrictions, both in respect of the time and extent of grazing allowed.

The farming systems and settlement patterns in Dooagh (Dumha Acha), Achill, were unique to the island. The townland comprised a large clachan, the population of which was greatly inflated by migration from other townlands, most notably Sliabh Mór, where evictions were common in order to facilitate land allocation to those who converted to the Protestant religion.[38] There was no restriction on the number of livestock grazed on the island's extensive mountain commonage areas. However, the necessity to have adequate winter fodder was a limiting factor in controlling livestock numbers, and in restricting the grazing season and in preventing over-grazing.

Maintenance of the fertility of the cultivated ground was, as indicated above, a continuing challenge. The production of animal manure was limited largely to the small number of animals housed, along with the poultry flocks kept by many families. Seaweed was widely used in the cropping areas. Cultivated plots around foreshores would also have benefitted from (calcareous) sand and sea-shell fragment deposits during the frequent gales and storms. Fishing was, in many locations, a significant activity engaged in by the communities. The staple diet of potatoes, butter, and buttermilk was supplemented with foods such as fish and shellfish, as well as wildfowl and rabbit.

2. Scottish runrig farming

The infield-outfield system of farming known as runrig seems to have developed in the Scottish landscape following the feudalisation of landholding from the thirteenth century onwards.[39] The medieval landscape was, as indicated by Dodgshon, constituted in a wholly different way from the open fields and nucleated settlement manifest in the eighteenth-century evidence. The rigs or cultivation ridges of each farmstead were set in separate enclosures with the farm buildings. Runrig must have emerged between the two periods.[40]

[38] The term clachan is not an Irish word, having been introduced to the rundale literature by Estyn Evans. Many Irish scholars tend to use alternative terms, such as 'farm clusters' or 'villages'.

[39] Dodgshon, R.A., 'West Highland and Hebridean Settlement Prior to Crofting and the Clearances: A Study in Stability or Change?', *Proceedings of the Society of Antiquaries of Scotland* 123 (1993), 419–428; Dodgson, R.A., 'The Atlantic Ends of Europe Revisited', in P.J. Duffy and W. Nolan (eds), *At the Anvil: Essays in Honour of William J. Smith*, Dublin 2012, 421–451.

[40] Dodgshon, R.A., 'West Highland and Hebridean Landscapes: Have they a History without Runrig?', *Journal of Historical Geography* 19(4) (1993), 383–398.

The meaning of the agrarian term 'runrig' progressively evolved during the period of infield-outfield agriculture, according to Whittington. To begin with, it may have meant 'ridges running in parallel within the agrarian unit'. Then it became associated with a system whereby the land in each agrarian unit was shared between the total number of cultivators involved. As Dodgshon expresses it, 'we can expect previously separate holdings slowly to have leant towards each other, as their occupiers reached agreements over how their collective renders or rent were to be paid'. Whether this was concerned with having an equitable share of land of different qualities has been debated, but it seems likely. Equal division of land with regard to quality and extent almost invariably would lead to some form of intermixture – to this the term *runrig* was applied.[41] At a later stage, runrig was, in some areas of Scotland, recognised as involving an exchange or re-allocation of fragmented areas either annually or at longer intervals. Thus, Whittington observed that runrig appears to have meant different things in different contexts and at differing periods.[42]

The basic components of runrig farms in many parts of Scotland were integrated arable and livestock production, involving infield and outfield land areas, combined with common pasture. The system of land leasing involved was a fundamental determinant of how runrig farms were worked. Whittington has described the forms of *tenantry runrig* employed in Scotland in the eighteenth century.[43] Under what was probably an older system, all tenants on one farm were equally responsible for its running and for the payment of its rent. In such circumstances, the land would most likely have been cultivated in common, and its products divided after harvest. In such a case, as stated by Whittington, it could 'simply have referred to ridges lying in parallel'. Under a second system, several cultivators on one farm each had a separate lease or standing, and were only responsible for the cultivation and rent of the land involved in the lease agreement; these were the multiple-tenancy farms.

In addition to tenantry runrig, a system of *proprietary runrig*, involving hereditary property rights, was common in Scotland in the sixteenth and seventeenth centuries. The case study pertaining to the former border counties of Roxburghshire and Berwickshire, outlined below, describes the main features of proprietary runrig.

[41] *Registrum de Dunfermelyn,* ed. Innes, C., Edinburgh 1842, 285; Whittington, G., 'Field Systems of Scotland', in A.R.H. Baker and R.A. Butlin (eds), *Studies of Field Systems in the British Isles*, Cambridge 1973, 530–579, at 536–543; Dodgshon, R.A., *No Stone Unturned: A History of Farming, Landscape and Environment in the Scottish Highlands and Islands,* Edinburgh 2015, 182.

[42] Whittington, *op. cit.*; Dodgshon, R.A., 'Towards an Understanding and Definition of Runrig: The Evidence for Roxburghshire and Berwickshire', *Transactions of the Institute of British Geographers* 64 (1975), 15–33.

[43] Whittington *op. cit.,* 1973, 539–542.

Layout

Two defining features of the layout of runrig farms were the infield and outfield. The infield was an area of land close to the settlement, while the outfield was usually at a greater distance. The infield was continuously cultivated, and received the available manure. It was surrounded by an inner dyke, but within the enclosure might also be areas of wet or stony land which were unsuitable for cultivation and areas of meadow. The outfield lands lay in irregular areas around the settlement, often on land with poorer fertility and drainage. Parts of the outfield were cropped on a shifting basis and were separated from the common pasture by the head dyke. Tenants' rights to pasture were in proportion to their share of the arable land. This system was termed *souming and rouming*.[44]

Crop cultivation

Food grains and brewing grains were the main infield crops cultivated. This commonly involved a one-third manured – barley – and a two-thirds unmanured – oats – rotation; grains were spring-sown.[45] Portions of the outfield were, as previously mentioned, also cultivated. Before the outfield was ploughed, cattle belonging to the settlement were folded on the land during the nights of the summer months, and this provided some rudimentary fertilisation. After ploughing, the land was usually planted with oats. This crop was grown continuously without further fertilization. The cultivated portions of the outfield were cropped for about three or four years until the land was incapable of returning the amount of seed necessary to sow the land the following year. It was then taken out of cultivation and allowed to rest or fallow for five years and regenerate a natural vegetation cover.

In runrig cultivation, the land was divided into a series of high-backed ridges, often as high as 6 feet (2m) from crown to foot, and up to 20 feet (6m) in width. The ridges held by individual cultivators were usually grouped in dispersed blocks, sinuous in form, and ran parallel to one another. In between the ridges were balks, usually of unploughed land and stones, and into which the ridges drained.[46]

The emphasis given in runrig agriculture to resilient farming is strongly underlined by the practices adopted in land manuring. The infield cultivation areas received all of the manure accumulated over the winter period, when cattle were usually housed in byres. The available manure was generally applied on one-third of the permanent arable land, which was ploughed three times and sown with barley or bere. The outfield lands also received some fertilisation before being ploughed, from cattle folded on it during the nights of

[44] Dodgshon, *op. cit.,* 2015, 104–105; Whittington *op. cit.,* 1973, 548.
[45] Whittington *op. cit.,* 1973, 533.
[46] Halliday, S., 'Rig-and-Furrow in Scotland', in S. Govan (ed.), *Medieval and Later Rural Settlement in Scotland: Ten Years On*, Edinburgh 2003, 69–81; Whittington, *op. cit.,* 537.

the summer months, a process known as *tathing*. Turf-walled enclosures were sometimes constructed to contain the livestock at night. Also, the grazing of livestock until the weather deteriorated would have contributed to the fertility of the farmland. Manure was augmented by the use of various substances. On hillsides, vegetation and topsoil were often pared and burnt, and ashes mixed with soil and used as fertiliser. Also, soot-coating stripped from roofs of the farm houses was added to the manure heap. Some of the Hebridean islands also relied more on seaweed than animal dung.[47]

Livestock grazing

The infield-outfield complex was generally held together in a matrix of natural hay meadows.[48] Outside the infield and outfields was an area of common grazing moorland, hill-land, or waste, which provided pasturage for the main tenants of the settlement. Usage of the common pasture by the individual tenants was in proportion to their share of arable land.

The annual livestock grazing cycle involved transhumance or the *shieling* system, as it is known in Scotland. In late May or early June, the milch cows, together with varying numbers of men and women, moved from the settlement to upland grazing, where the area of best grass cover was reserved for the milch cows. The land area that formed the shieling had a temporary or seasonal dwelling, and could have been located at some distance from the farm – up to seven miles was quite common. The characteristics of the shielings and remains of the structures still surviving have been detailed by Cheape and Dixon.[49] The cattle were managed on the upland grazing until such time as the pasture gave out. On their return to the township, they may have been grazed in the outfield and moved in the mornings to the muirlands (rough, unenclosed land), and returned at night to the temporary fold. The cattle were kept outside as long as the weather conditions allowed. They were then housed in the cattle byre in the settlement, and grazed the stubble and uncultivated areas, while the weather was reasonable. Thereafter, they were kept in the byre on an often-inadequate feed system until spring.

While not every settlement unit had a shieling, the system of transhumance occurred widely throughout Scotland. The shieling was not confined to the Highlands, but was also found in the southern uplands. The collapse of the shieling system seems to have resulted from increasing year-round livestock rearing for meat and also from the introduction of potatoes and flax. The consequential demand for labour in the township area for planting,

[47] Dodgshon, *op. cit.,* 2015, 108.

[48] On meadows, see Shepherd, C., 'Medieval fields in North-East Scotland', *Landscape History* 29(1) (2007), 47–74, at 63–64.

[49] Cheape, H., 'Shielings in the Highlands and Islands of Scotland: Prehistory to the Present', *Folk Life: Journal of Ethnological Studies* 35(1) (1996), 7–24; Dixon, P.J., 'What do we Really Know about Transhumance in Medieval Scotland?, in E. Costello and E. Svensson (eds), *Historical Archaeologies of Transhumance across Europe,* Abingdon 2018, 59–73.

weeding and harvesting these crops occurred in the period when the shieling area might otherwise have be used.[50]

Land tenure and operation

Runrig tenure was often a temporary matter and subject to short, sometimes even one-year leases or *tacks*. Lands held on such leases were liable to reallocation each time it was renewed. Particularly in the north and the west of the Highlands, the land held was allocated annually, from the ploughing of the soil to the harvesting of the grain. The strips were pooled and the whole of the land was divided into a number of strips, according to the number and standing of the tenants. Lots were drawn for the shares, but the practice seems to have been relatively rare and is only definitely recorded in a few areas of Scotland. An alternative method was to allocate the specific pieces of land. On quite a number of farms in Roxburghshire and Berwickshire, leases stated exactly which share each tenant was to have by the simple method of naming the previous occupant.[51]

The extent to which certain features typically associated with runrig (Table 2) were generally applied is open to question. Intermixture of holdings is basic to most definitions of runrig; however, as reported by Dodgshon, evidence for this feature of the system is scarce in Roxburghshire and Berwickshire. Overall, the essence of runrig is defined less by the way the land

Table 2 – Features of runrig farming

Layout	Infield-outfields Common meadow pasture/meadow lands Clustered settlements
Crop cultivation	Infield dispersed intermixed strips Uniform crop rotation *[Equitable sharing of land Periodic reallocation of land Drawing of lots]
Livestock husbandry	Cattle with sheep and goats Restricted numbers Transhumance
Land tenure	Multiple tenant holdings Proprietary tenant holdings

*These practices appear to have applied only in some areas of Scotland and during some periods (Whittington, 1973).

[50] Dixon, *op. cit.,* 2018, 60–61.
[51] Dodgshon, *op. cit.,* 1975, 19.

was farmed and more by its tenure. The core feature of runrig was the concept that it represented a system by which the tenants had shares in the township, which they might manage in various ways.[52]

Case study i: Cairngorms

Prior to the process of agricultural improvement in the eighteenth century, the cultivated landscape of Cairngorms in the Highlands of Scotland was dominated by runrig farming.[53] The historic landscape contained a series of infield and outfield systems, complemented by shared areas of peat, rough pasture, and woodland. The infields involved good land in terms of cultivation, fertility, and drainage, where the primary crops of the region were grown, usually peas, beans, oats, and barley. The outfields were farmed on a rotational basis, while often being used as pasture for cattle, the dung of which prepared the soil for subsequent planting. The tathing of cattle, whereby the animals were confined to a specific portion of the land for eight to ten days, manuring it, before being moved to another part, was reported in Aberdeenshire. The practice was, however, said to have encouraged weeds and other vegetation that competed with the crops.

The agricultural landscape contained *kirktowns* and *farmtowns*. The majority of the Highland population was accommodated in these settlements. The principal tenant of a farmtown was the *tacksman*, who sub-let to small-unit farmers. Kirktowns were parochial and regional service centres. The houses were turf-built dwellings, arranged around midden heaps and yards, where much of the fertiliser used on infields was collected.

In common with rundale farming, pastoralism was a dominant feature of runrig landscapes, and included the traditional practice of transhumance, involving the summer pasturing of livestock in upland regions and their removal to more sheltered parts when the weather deteriorated. Livestock, particularly black cattle, goats, and sheep, were a significant aspect of the Highland economy in sustaining rural families prior to the process of agricultural improvement in the eighteenth century. Farmers were dependent on the production of manure to fertilize their fields, and hence there was a close relationship between the number of livestock grazed and the extent of cultivated land. The quantity of livestock kept by any one farmer was closely controlled by the practice of *stenting* (stinting) or souming, by which the area of land required to support a single animal was determined. To avoid over-exploitation of the available land, excess livestock were slaughtered prior to the onset of winter.

Control of livestock grazing, among other aspects of runrig farming, relied on communal support. However, large-scale population growth in

[52] Dodgshon *op. cit.,* 1975, 27–29.

[53] Outram-Leman, S., *Ecosystem Service Provision in the Cairngorms National Park: Case Study of Past and Future Management of Geodiversity and Biodiversity* (Scottish Natural Heritage Commissioned Report, 554), Edinburgh 2013.

the Highlands in the latter half of the 1700s, allied to the era of agricultural improvement, shifted the traditional balance towards the commercialisation of agriculture and transformation of the historical landscape of the Cairngorms.

Case study ii: Roxburghshire and Berwickshire

Dodgshon described tenant runrig farms and proprietary runrig farms in seventeenth- and eighteenth-century Roxburghshire and Berwickshire based on information on landholding from rentals and leases.[54] Leases of holding of farms by more than one tenant – namely, multiple-tenant farms – divide themselves, as stated by Dodgshon, into those which set a specific share of the farm to a single tenant, and those which set the entire farm *en bloc*. The commonest form of entry was that which apportioned to each tenant a distinct share of the farm. As indicated by Dodgson, such tenants must have been responsible only for the management and rent of that share. On the other hand, where farms were held *en bloc* by a group of tenants, these tenants must have been responsible, individually as well as collectively, for the management and rent of the entire farm, and not just a portion of it. Based on an examination of rentals for the period 1680–1766, Dodgshon concluded that the total number of multiple-tenant farms amounted to just over half (54%).

Proprietary runrig farms, or *touns* as they were called, were characterised by their land-holding rights and can be traced back to the fifteenth century. They were widespread throughout eastern and north-eastern Scotland in the sixteenth and seventeenth centuries; forty-six touns have been located in Roxburghshire and Berwickshire. Land charters for some touns provide clear proof of their fixed layout. The landholding framework of most proprietary runrig touns was based on land units, such as husbandlands or merklands. These land units were treated as representing equal unit shares of arable, pasture, and meadow in the toun.

Proprietary runrig touns extended over a wide range in terms of size and the complexity of their land-holding structures. A few were comparable in size with English subdivided field systems. A number exceeded 1000 Scots acres (511 ha), while others had less than 100 acres. Some touns had complex land-holding structures, involving numerous heritors – close to fifty in one instance – while a few were held by just two or three heritors.

Case study iii: Lipney, Menstrie Glen, near Stirling

The three farmsteads of Lipney – Foreside, Quarterside and Backside – had been established by the early eighteenth century through the division of what had been one farm. There was a well defined head dyke, which separated the main area of fields from the hill pasture, but its position appears to have been progressively altered to take in a larger area of land. In addition to the three main farms, there were a series of turf-walled byre-houses, often in association

[54] Dodgshon, *op. cit.,* 1975.

with areas of lightly incised rig, and other huts situated at higher elevations. The more ephemeral rig represents temporary areas of cultivation. The *tack* of Backside and Foreside had been held jointly in 1730, but they were divided two years later, though the hillside was still held in common. The lands called White Meadow and Greens of Craigneish were to be shared between the two, so that they might either plough it or hold it as pasture.[55]

Clearly, while this is not a standard runrig township, it had many of the features of such a system of farming, including the subletting by head tacksmen and an apparent use of more intensively cultivated land and temporary arable. Yet what makes this particular area so interesting is that it seems to have evolved from a series of shieling pastures and enclosures to form permanent farmsteads, using land with fertility enhanced by the seasonal grazing. Far from being a fixed system, land management within runrig was capable of adapting to changing circumstances.

3: Open-field systems in northern England

The areas of England geographically closest to Ireland and Scotland and with the most similar conditions were, on the west of the Pennines, Cumbria – the counties of Westmorland and Cumberland – and, on the east, County Durham and Northumberland. Yet, unlike Ireland and Scotland where the patterns of communal agriculture persisted in many places into the late eighteenth and nineteenth centuries, the enclosure of open fields in northern England had proceeded apace, so that these had almost entirely disappeared by the mid-eighteenth century.[56] The discussion here is confined to the open-field farming found in the period between the sixteenth century and before enclosure (Table 3).

Table 3 – Features of northern England farming systems

Layout	Common ingrounds and outfields Meadows (may be part of inground), and waste Villages, hamlets or dispersed settlements
Crop cultivation	Dispersed furlongs within larger commonfields Uniform crop rotation only within furlongs
Livestock husbandry	Cattle and also sheep Restriction of numbers by stinting Transhumance
Land tenure	Private property

[55] Royal Commission on the Ancient and Historical Monuments of Scotland, *'Well Sheltered and Watered'. Menstrie Glen, a farming landscape near Stirling*, Edinburgh 2001, 45–46.

[56] Winchester, A.J.L., 'Regional Identity in the Lake Counties: Land Tenure and the Cumbrian Landscape', *Northern History* 42(1) (2005), 29–48, at 33; Butlin, R.A., 'Field systems of Northumberland and Durham', in Baker, A.R.H., and Butlin, R.A. (eds), *Studies of Field Systems in the British Isles*, Cambridge 1973, 93–144, at 110.

The soils in northern England were generally poor, the upland wastes more extensive and the growing season shorter than further south. These geographical and climatic conditions in the north tended to encourage the development of a core of well-fertilized land, more extensive pasture and areas of rough common grazing on the uplands or bogs. Yet, in spite of this, in many places the open fields were not divided into separate areas of infield and outfield. The known examples of infield-outfield lay mostly on the Solway Plain.[57] The references to 'infield ground' and 'outfield ground' in northern England do not refer to such a system, but allude to the fertility of the soil or the method of cultivation outside an open-field system.[58] This is discussed further below.

The land in the north-west was generally held in open fields, but these had little resemblance to such systems further south in England. The individual pieces of land were *riggs* or ridges of land separated from the adjoining tenants by *floors* or furrows.[59] The riggs were grouped together into what were termed variously furlongs, *flatts* or 'fields'. These seem to have formed units for cropping. So, unlike elsewhere in England, the furlongs were generally not grouped into larger fields for purposes of crop rotation. Cropping was organised by the individual furlong, rather than the wider field.[60] On the better soils, typically on the coastal plains, there were larger settlements with correspondingly greater areas of open fields. In areas of poorer soil, the settlements were often only hamlets or even a few farmsteads, and the open fields were much smaller in area, referred to by Winchester as 'farm-group territories'.[61]

The north-east counties, by contrast, had open fields which to a greater degree resembled those elsewhere in the Central Province of England.[62] Typically, there were three fields per township and these formed the basis of the rotation. However, even here, there is strong evidence in many places that in the late Middle Ages, the furlongs had not been grouped into larger fields, and that this became common practice only from the sixteenth century onwards. Moreover, even when larger fields existed, they may have been 'topographic

[57] Newman, C.E., Mapping the Late Medieval and Post Medieval Landscape of Cumbria (unpublished PhD thesis, University of Newcastle, 2014), 180–182.

[58] Winchester, A.J.L., Territorial Structure and Agrarian Organisation in Mediaeval and Sixteenth Century Copeland, Cumberland (unpublished PhD thesis, University of Durham 1978), 182; Elliott, G., 'Field Systems of Northwest England', in A.R.H. Baker and R.A. Butlin (eds), *Studies of Field Systems in the British Isles*, Cambridge,1973, 41–92, at 66–67; Butlin, *op cit.*, 109–110.

[59] Gray, H.L., *English Field Systems*, Harvard, 1915, 208; Butlin *op. cit.*, 131.

[60] Elliott, G., 'The System of Cultivation and Evidence of Enclosure in the Cumberland Open Fields in the Sixteenth Century', *Transactions of Cumberland and Westmorland Antiquarian and Archaeological Society* second series, 59 (1959), 85–104, at 87; Elliott *op. cit.* 1973, 45–47; Butlin, *op. cit.*, 132; Winchester, A.J.L., *Landscape and Society in Medieval Cumbria*, Edinburgh 1987, 72–74.

[61] Elliott 1959, *op. cit.*, 93–96; Butlin, *op. cit.*, 1973, 125; Winchester 1978 *op. cit.,* 173–179.

[62] For the definition of the Central Province, see Roberts, B.K. and Wrathmell, S., *Region and Place: A Study of English Rural Settlement*, London 2002, 1–2.

units, rather than units of arable cultivation'.[63] The absence of a cropping system based on a division into open fields allowed much greater flexibility than was usual in communal agriculture. It allowed furlongs to be used for pasture, meadow, vegetables or other minor crops, such as hemp, regardless of the cereals grown in adjoining furlongs.[64]

Crop cultivation

One of the disadvantages of setting the livestock to graze on the common lands over the summer months was the reduced availability of manure for the cropping area. When livestock grazed on the open fields, the manure made a valuable contribution to the soil. The manure from those animals kept indoors could be collected on a dung heap for later spreading on the arable fields. On the manors where only limited quantities of cereals were grown, there was a problem in accumulating enough straw for bedding when the livestock were kept inside. In the uplands, bracken or 'fern' could be used an alternative bedding material and, so important was it on some Cumbrian manors, that the hillslopes were divided into areas known as *rooms* or *dales* to allow shares for all.[65] The used bedding formed part of the organic matter which was spread with the manure on the fields. There was a further source of fertiliser on the manors by the coast, such as Drigg and St Bees in Cumberland. Seaweed was collected from areas of the portions of the seashore, known as *tangle dales* or *tangle dotes*, and spread on the land.[66]

A number of scholars have concluded that references in historic documents to ingrounds and even infields do not imply the existence of an infield-outfield system in northern England.[67] Nevertheless, that does not mean that infield-outfield agriculture was not practised. Examples are known or possible at, amongst others, Alnham, Catton, Gunnerton, Norham, Tweedmouth and Holy Island in Northumberland, and in Cumberland at Aspatria, Faugh near Hayton, Greysouthern near Dean and Mockerkin.[68] However, the outfields of northern England seem to have had a closer resemblance to convertible husbandry found on poor soils in the south, than to the infield-outfield systems of Scotland.[69] Given the way in which even the infield was not cultivated on

[63] Butlin, R.A., 'Northumbrian Field Systems', in *Agricultural History Review* 12 (1964), 99–120, at 118; Butlin *op. cit.* 1973, 141–142; Britnell, R.H., 'Fields, Farms and Sun-division in a Moorland Region, 1100–1400', *Agricultural History Review* 52 (2004), 20–37, at 25–26.

[64] Elliott *op cit.,* 1973, 59.

[65] Winchester, A.J.L., *The Harvest of the Hills: Rural Life in Northern England and the Scottish Borders, 1400–1700*, Edinburgh 2000, 135.

[66] Gray *op. cit.*, 208; Elliott *op cit*., 1959, 92; Dickinson, W., 'On the Farming of Cumberland', *Journal of the Royal Agricultural Society of England* 13 (1852), 207–300, at 237.

[67] Butlin *op. cit.,* 1964, 108;

[68] Butlin *op. cit.,* 1964, 117; Newman *op. cit.* 2004, 180–181. For Hayton, see Graham, *op. cit.,* 1910, 121.

[69] Butlin *op cit.,* 1964, 106–111. For the difference between convertible husbandry and infield-field agriculture, see Hall, D., *The Open Fields of England*, 2014, Oxford, 86–87. Dodgshon makes the point that in Scotland the outfield was not assessed for taxation, *op. cit.* 1980, 92.

a system of continuous cropping and indeed did not necessarily have a single cropping routine, it is doubtful whether the northern English practice really should be compared to the Scottish infield-outfield system.[70] Instead, it seems better to identify the infields as more intensively used lands and the outfield as land brought regularly or occasionally under the plough.

The outfield was divided into a series of equal areas known as *rivings*. Each riving was brought under cultivation periodically and ploughed for a number of years until the declining nutrients in the soil led to poor crops, after which the land was left to recover. For example, at Aspatria there were two separate outfields, each with four rivings (Fig. 4). Each riving was brought

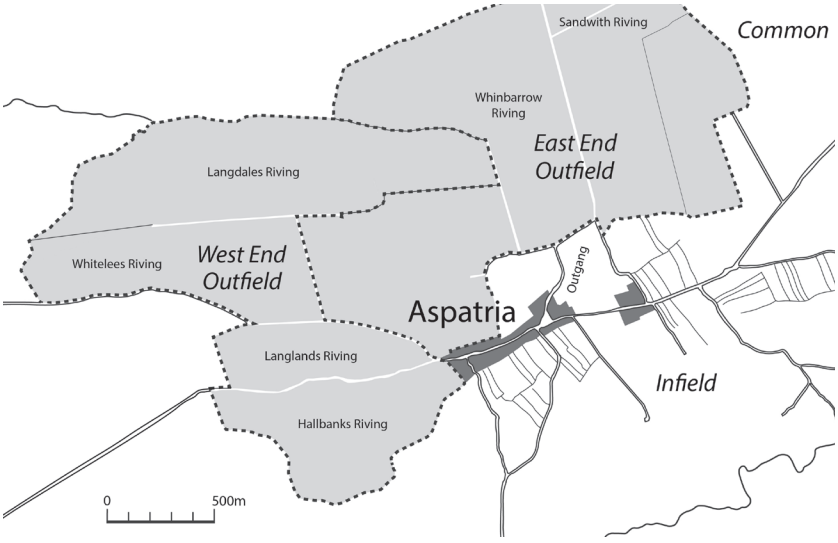

Figure 4. Reconstruction of Aspatria (Cumberland) before the enclosure.
The rivings of Tofts and Highmoor in East End outfield have not been located.

under cultivation in turn for a period of four years, and then left fallow for the following twelve. On the better soils the land might be cropped for five years followed by five years as pasture.[71] The infield, by contrast, was not necessarily cropped continuously, but was sown more regularly than the outfield.

The crops grown in northern England varied, depending upon the soils and elevation of the fields. Spring-sown crops of barley or oats were preferred to autumn-sown cereals because it allowed a longer period for the animals to graze the stubble before the land was brought under plough again.

Livestock husbandry

On the poor soils of northern England livestock husbandry played a much more

[70] Butlin *op cit,.* 1964, 119–120.

[71] Elliott *op. cit*., 1959, 92; Elliott, G., 'The Enclosure of Aspatria', *Transactions of Cumberland and Westmorland Antiquarian and Archaeological Society* second series, 60 (1960), 97–108, at 100.

significant role in the rural economy than in the south. In the upland manors, there were significant areas of moorland which could be used for rough grazing in the summer months, and the economy might be summarised as subsistence corn and livestock breeding.[72] The farmers concentrated on cattle production rather than rearing, with dairying providing a subsidiary part of the economy.[73]

The key distinction for livestock management was between the land within the head dyke, which included the farmsteads, arable and the pasture land, and the common land beyond. Typically, the *head dyke* was an earthen bank surrounding the whole of the improved land with a ditch on the side adjoining the common to form a high boundary to prevent the animals from entering the in- or outfields inside during the summer months. In the late spring, before early May and, in the seventeenth century, even as early as Lady Day (25 March), the livestock was driven out of the fields around the farms and on to the fells or moors where they grazed over the summer. During that period, the dairy cows might be milked either in shielings, if they were grazing at a distance, or on an enclosed cattle pasture on the fellside, or even on the farm in those situations where they could be driven back on a daily basis. The road from the common land to the farm was a funnel-like driftway known as the *outgang*. Some of the beasts were driven back to graze on the cut pasture fields and stubble from August onwards. In the late autumn, usually in early November, the remainder of the livestock were bought back from the commons and might graze in the fields or, where the fodder was provided, might be housed indoors and fed on the *browse* from cut tree branches.[74]

So, although pasture was available on the uplands, livestock had to be maintained over the winter indoors or on the fields with fodder. That placed constraints upon the number of animals which could be maintained. In order to prevent overstocking, many manors introduced a system of regulation or stinting. The total carrying capacity of the land was determined and the number of possible grazing animals divided up between the tenants. The measure of grazing land in northern England was usually the *cattlegate*, which was similar to the Scottish and Irish soum.[75]

Meadow was scarce even in the lowlands. Areas of the infield might include patches of meadow, as at Orton where in the East Fields there were areas adjoining riggs of arable in various furlongs.[76] Larger areas of meadowland might be found on the alluvial lands which might be flooded in the winter, but in the spring provided a rich growth of grass. The land was divided into dales

[72] Thirsk, J, 'The Farming regions of England', in *The Agrarian History of England and Wales: vol. IV 1500–1640*, Cambridge 1967, 21–22.
[73] Winchester, *op. cit.,* 2000, 19.
[74] Winchester, *op cit.*, 2000*,* 55–56.
[75] Winchester, A.J.L. and Straughton, E.A., 'Stints and Sustainability: Managing Stock Levels on Common Land in England, c.1600–2006', *Agricultural History Review* 58 (2010), 30–48.
[76] Graham, T.H.B., 'The Townfields of Cumberland', *Transactions of Cumberland and Westmorland Antiquarian and Archaeological Society* second series, 10 (1910), 118–134, at 124–125.

or shares, which might be permanently allocated or allocated by lot each year. The meadows were cut to make hay before the sheep were set to graze on the marshland.[77] Between the riggs there were often raised banks of unploughed land known as *ranes* which were wide enough to grazed tethered animals even while the adjoining land was under crop.[78]

Land tenure

A wide variety of practices existed in northern England. In some areas, the holdings of riggs within the furlongs was arranged on a 'tenurial cycle' with a recurrent sequence of tenants repeated in the same order on separate furlongs. This system was often associated with *solskifte*, a pattern in which holdings towards the south and east were said to be 'closer towards the sun' and those to the north and west were described as 'closer to the shade'.[79] The procedure was even applied to land newly taken into cultivation, but this systematic arrangement was not widespread.[80] Elsewhere, and throughout northern England generally, there was a tendency for the holdings of a single tenant to be concentrated in one area of the open fields and not throughout the whole.[81] In the North-East the holdings typically comprised one husbandland, which represented an equal resource in the share of the township. Such a system is not found in the North-West, but the concept of equal shares seems to be implied by the payment of the same rent by a number of tenants. In some places, this may have originated in partible inheritance, but elsewhere it represents an often quite late division of a once common resource.[82]

Case study: Aspatria

The township of Aspatria (Fig. 4) was surveyed in 1576 when it was described as comprising an infield of 152 acres of arable and 120 acres of meadow. There were also two separate outfields extending to 640 acres. Each of the outfields was divided into four parts, known as rivings. In the East Outfield the rivings were called Highmoor, Whinbarrow, Tofts, and Sandwith and in West Outfield, they were known as Hallbanks, Whitelees, Langdales and Langlands. Each riving was brought under cultivation for four years and then left fallow for the following twelve years. As a result, one area of each outfield was always under crop in any year. After harvest the livestock was allowed to graze on the stubble on the infield and the cultivated outfield until it was time to plough it again in the spring. The number of animals allow to graze on the uncultivated infield

[77] Butlin *op. cit.* 1973, 134–135.
[78] Elliott *op cit.,* 1973, 61–62.
[79] Göransson, S., 'Regular open-field pattern in England and Scandinavian solskifte', *Geografisker Annaler* 43B (1961), 80–101; Britnell, *op cit.*, 11–13.
[80] Butlin, *op cit.,* 1964, 106, 109; Butlin *op. cit.* 1973, 118; Britnell, *op cit.*, 28; Hall, D., *The Open Fields of England*, Oxford 2004, 118–128.
[81] Gray, *op cit.,* 234–239; Britnell, *op cit.*, 26–27; cf. Elliott *op cit.,* 1973, 51–52.
[82] Winchester *op. cit,.* 1978, 184–194; Butlin *op. cit.* 1973, 138–139.

and those grazed on the outfield was regulated in proportion to the area held by tenants and was reckoned at 222 *beastgates*, a variant on the term 'cattlegate'. The land of the outfields was of variable quality and when enclosed in 1758 and 1759, in order to provide some degree of fairness, the surveyors divided it up into three types – cornland, sandland and grassland – to ensure that tenants got equitable shares of the best and poorest land.

The infield and outfields were surrounded by a bank or head dyke called 'Acrewall' to keep the animals out of the crops. Beyond the bank lay a shire moor of about 4300 acres which was also common to another eight townships.[83]

4. Comparability and origins of the three historical farming systems

The authors of one of the few attempts to compare farming systems in Britain and Ireland described the exercise as an attempt to plot a safe course between generalisation and particularisation.[84] Such a process has to take into account that the comparison is moreover between places which are not only geographically separate, but also where the evidence may have been taken from different historical periods and various social and economic situations. This study has considered, in particular, the traditional farming systems of the eighteenth and early nineteenth centuries, which were, of course, not fixed in character, but in a continuous state of evolution.

Table 4 summarises the main features of the three historical farming

Table 4 – Comparability of the three historical farming systems

Features	Rundale (Ireland)	Runrig (Scotland)	Northern English field systems
Layout			
Clustered settlements	✓	✓	✓
Infield-outfield system	✓	✓	✓
Common(ages)	✓	✓	✓
Crop cultivation			
Dispersed intermixed strips	✓	✓	✓
Systemic manuring practices	✓	✓	✓
Uniform crop rotation	✓	✓	✓
Livestock husbandry			
Restricted grazing	✓	✓	✓
Transhumance	✓	✓	✓
Stubble grazing	✓	✓	✓
Tenure			
Multiple tenancy holdings	✓	✓	
Proprietary holdings		✓	✓
Management practices			
Equitable sharing of land	✓	✓*	✓
Periodic re-allocation of land	✓	✓*	
Drawing lots for shares	✓	✓*	✓

* These practices appear to have applied only in some areas of Scotland and during some periods.

[83] Elliott *op. cit*., 1960.

[84] Baker, A.R.H. and Butlin, R.A., 'Conclusion: Problems and Perspectives', in A.R.H. Baker and R.A. Butlin (eds), *Studies of Field Systems in the British Isles*, Cambridge 1973, 619–656, at 619.

systems in Ireland, Scotland and Northern England. It shows a striking comparability in farm practices used in each of the farming systems. Dispersed, intermixed cultivation strips, manure management, and relatively uniform crop-rotation practices were commonly used in crop cultivation. In livestock husbandry, restricted grazing and stubble grazing were generally practised, and transhumance was a well-documented feature of rundale, runrig and northern English agriculture. Equitable sharing of arable land, periodic reallocation of land, and casting of lots for shares were commonly recorded practices in rundale farming. These practices were also employed in runrig agriculture, but their application appears to have been more confined in terms of location and period of usage. In the farming systems of northern England, such practices were, in particular, applied to the meadowland.

The comparability of the farming systems was not only confined to their outward manifestations, but also to the underlying strategies to maintain enduring and resilient farming practices. All of the three areas examined lie on the western and northern margins of Europe, in areas with high rainfall, low summer temperatures and often poor soil fertility. Pastoral livestock husbandry was a prime concern in regions of mainly marginal farmland, found on the western seaboard of Ireland and the Cairngorms in Scotland, as well as north-east England. Yet, it should be noted that the emphasis given to crop cultivation seems to have increased over time, reflected by the adoption of the tillage collop in rundale farming in Ireland.[85]

Manure from livestock performed a vital function in maintaining soil fertility. The farming systems combined extensive rough pasture, usually well away from the farmsteads, often in upland areas which were suitable for summer grazing, with a core of arable land close to the farms. The management of the land resources entailed a transfer of nutrients from the poorer pastoral areas to the arable lands, which were otherwise diminished by cultivation and by soil nutrients being washed away by the high rainfall in these regions. An extreme expression of this can be found on some of the Scottish Northern Isles where parts of the common land were stripped of turf down to the mineral soil which was removed to enhance the fertility of the land within the head dyke.[86] This tends to support Dodgshon's conclusion that livestock raising was not always organised to maximise the returns from animals, but as an adjunct to the arable land.[87] He argues that the ideal ratio of arable to grass in the

[85] For a general discussion of the tillage collop, see Slater, *op. cit*.

[86] Adderley, W.P., Simpson, I.A., Davidson, D.A., 'Historic Landscape Management: A Validation of Quantitative Soil Thin-section Analyses', *Journal of Archaeological Science* 33 (2006), 320–334; Simpson, I.A., 'Relict Properties of Anthropogenic Deep Top Soils as Indicators of Infield Management in Marwick, West Mainland, Orkney', *Journal of Archaeological Science* 24 (1997), 365–380; Fenton, A., *The Northern Isles: Orkney and Shetland*, Edinburgh 1978, 281.

[87] Dodgshon, R.A., 'Strategies of Farming in the western Highlands and Islands of Scotland Prior to Crofting and the Clearances', *Economic History Review*, second series, 46 (4) (1993), 679–701, at 680–681.

Highlands was 20:80.[88] In these circumstances, the infield can be seen as the central resource of the farming community. The outfield, found in the farming systems in all the areas examined here, served both to maintain the livestock and provide periodic arable. It was cultivated for as long as it could provide an adequate return on the seed sown and then reverted to pasture.

In historical farming systems outlined above, the interests of the landlords and tenants were inherently different: the former were primarily concerned with supplying markets with cattle, while tenants were more concerned with growing subsistence crops for direct consumption. The rise of population in the eighteenth and nineteenth centuries played an important part, strengthening the demand for livestock products. However, the growing rural population also required more arable land to produce greater quantities of food to feed local people than could be got from an equivalent area of pasture. Thus, communities with a rising population expanded the area of arable at the expense of the area of grazing, which in turn reduced the availability of nutrients to the arable.

A third factor in the traditional farming system, to be considered alongside the physical constraints on farming and the economic pressures of the period, was the response of rural society. What is particularly notable is the strength of the local community, the townland or township, in each of the areas discussed. Not merely did they regulate the commonage or commons through the stinting of animals and the seasonal movement of livestock on to the hill pasture, but they also acted co-operatively to manage all the farmed land. Dodgshon contends that it was the imposition of fiscal payments upon groups as a whole that drew them to act in concert. They were responsible as a group for the discharge of these payments and therefore needed to act in concert to raise the surplus product, whether in money or in kind. Later, the community served a similar function in rendering rent payments to the landlord or tacksman, who found it easier to deal with a single group, often represented by one person, than many individuals. Each farmer's holding was responsible for a proportion of the overall payment, which was expressed as a share of the whole townland or township. The territorial community was thus drawn together to ensure that the whole group prospered sufficiently to discharge their obligations, since any shortfall by one farmer fell upon the others.[89]

Dodgshon's interpretation originating in a study of Scotland can also be applied to Ireland. One of the features of Irish rundale in the nineteenth century was the joint payment of rent by the townland as a whole. In the

[88] Dodgshon, R.A., 'Traditional Highland Field Systems: Their Constraints and Thresholds', in J.A. Atkinson, I. Banks and G. MacGregor (eds), *Townships to Farmsteads: Rural Settlement Studies in Scotland, England and Wales*, Oxford 2000, 109–116, at 111.

[89] Dodgshon, *op. cit.*, 1975, 29–31; Dodgshon, R.A., 'West Highland and Hebridean Landscapes: Have they a History without Runrig?' *Journal of Historical Geography* 19 (4) (1993), 384–385; Dodgshon, *op. cit*., 2015, 101–107, 181–184.

townland of Moyagall (Co. Derry) in 1734 the north-eastern division was leased to a group of four farmers in partnership, while the southern division was similarly leased to a further four. Each division appears to have been undivided and was therefore probably managed in a form of rundale. When the leases were renewed in 1764 the management of land in rundale was specifically forbidden and the land was partially divided between smaller groups. Clearly, this involved the progressive movement from jointly managed lands to individually leased and subdivided farms.[90] The partnership arrangements that underlie rundale farming were in this case gradually being eroded under new pressures during the course of the eighteenth century. Equally, traces of such joint payments, though exceptional in England at such a late date, may be suggested in the rents paid to Furness Abbey in 1537. A number of tenants in Lancashire paid identical rents, as if they had once held proportional shares, and the same was true in early seventeenth-century hamlets in Yorkshire and Northumberland.[91]

If we concentrate solely on the economic value of co-operative farming systems, we miss the importance of social solidarity which was provided. The forms of farming practices served to maintain the involvement of the whole community in the operation of the agrarian system to the extent that the advancement of individuals was constrained for the benefit of the group. From a functional point of view, co-operation allowed commons to be managed effectively and particular tasks, such as herding, to be undertaken by an individual for the benefit of all. The absence of hedges within the open fields allowed a greater area for cultivation and reduced or avoided maintenance of stock-proof barriers. Social solidarity therefore allowed the efficient use of labour and reduced conflicts over resources between neighbours.

The connection between nucleated settlement and communal farming systems has been frequently made. In Ireland, Estyn Evans noted the coincidence of clustered settlements or *clachans*, as he named them using the Scottish term, and rundale settlements. Subsequent work has tended to suggest that the patterns of settlement were much more dynamic than allowed by Evans, and the wider patterns of distribution were subsequently investigated by his pupil, Desmond McCourt.[92] Kevin Whelan drew attention to the fact that in County Waterford clachans developed on the areas of upland where the soils were poor and their growth in the decades around the turn of the nineteenth century coincided with the 'rundalisation' of land – the emergence of land held in joint tenure.[93] In Scotland, research has followed rather different lines, but reached

[90] Currie, E.A., 'Land Tenures, Enclosures and Field-patterns in Co. Derry in the Eighteenth and Nineteenth Centuries', *Irish Geography* 9 (1) (1976), 50–62, at 55–57.

[91] Winchester, 1978, *op. cit.,* 150–152.

[92] Evans, E.E., 'Some Survivals of the Irish Openfield System', *Geography* 24 (1939), 24–36, at 28–29; McCourt, D., 'The Dynamic Quality of Irish Rural Settlement', in Buchanan, R.H., Jones, E. and McCourt, D. (eds), *Man and His Habitat*, London 1971, 126–164, at 134.

[93] Whelan, K., 'Clachans: Landscape and Life in Ireland Before and After the Famine', in Duffy, P., and Nolan, W. (eds.), *At the Anvil. Essays in Honour of William J. Smyth*, Dublin 2012, 453–475, at 456–60.

remarkably similar conclusions, although, perhaps, with a somewhat earlier chronology. Excavation has shown that seventeenth- and eighteenth-century farmhouses are only rarely preceded by earlier, late-medieval buildings. The clachans or *bailtean* are the results of later growth in settlement, although the chronology of this remains uncertain.[94] The situation in England, by contrast, was rather different with the development of open-field systems and nucleated villages at a much earlier date. There are a very few examples of late village and open-field formation, such as Halton Shields in Northumberland which was apparently established in the early sixteenth century.[95] In all these examples, there seems to be a connection between nuclear settlement forms and common management of fields.

This paper is not, of course, the first to point out the similarities between the farming systems in Ireland, Scotland and northern England. The connection was made in Gray's pioneering study which identified a 'Celtic system' found in Scotland, Wales and Ireland. He also recognized areas in England influenced by the 'Celtic system', including Northumberland and Cumberland.[96] The ethnic explanation for cultural difference, which was more widely maintained in the early twentieth century, now seems less credible. Nor does it seem likely that the similarities were the result of the dispersal of an idea, although this argument has been made by Roberts and Wrathmell who propose that the idea of open fields evolved from a centre somewhere in the Upper Thames Valley in England and spread outwards. Their map stops at the Irish Sea and Scottish border. No attempt is made to explain the rather different forms of agricultural system found in the area examined here, or to explain the chronology and means of transmission across the Irish Sea.[97]

Eoin Flaherty sought to categorize the approaches which had been taken to understanding Irish rundale, and his analysis may be applied more generally to the agricultural systems examined here.[98] Gray's ethnic explanation falls under the heading of 'Anthropo-geographic', the perspective adopted by Estyn Evans, while the diffusionist view of Roberts and Wrathmell lies clearly within the 'Historical-cartographic' approach. A third interpretative framework is described by Flaherty as 'Residual-communal' and this can be traced back to Vinogradoff's idea expressed in 1904 that the form of common field system of the Celtic regions reflected a primitive form of society.[99] His work was based on ideas of social evolution under which societies develop

[94] Dodgshon, R.A., 'West Highland and Hebridean Settlement Prior to Crofting and the Clearances: A Study in Stability or Change?' *Proceedings of the Society of Antiquaries of Scotland* 123 (1993), 419–438.
[95] Roberts and Wrathmell, 2002, *op. cit.*, 86–87.
[96] Gray, H.L., *English Field Systems*, 1915, Cambridge (Harvard), 157–242.
[97] Roberts and Wrathmell, 2002, *op. cit.*, 143–146.
[98] Flaherty, E., 'Rundale and Nineteenth Century Irish Settlement: System, Space and Genealogy', *Irish Geography* 48 (2015), 3–38, at 12.
[99] Vinogradoff, P., *The Growth of the Manor,* London 1911, (second, revised edition), 15–36.

through various stages at different rates of progress. Flaherty includes the work of Tom Yager on rundale under this heading, though his approach is rather more sophisticated, owing nothing to social evolution, but rather stressing the importance of community spirit in determining the agricultural system.[100]

It should be apparent from the discussion so far that the interpretation favoured here owes little to those types of explanation. The wide spatial distribution and the similarity of the agricultural systems suggests that they do not emerge from a common stem, but arose out of independent invention in the form of similar responses in comparable environments to the fiscal and rent demands made upon rural communities and the need to manage the land in a sustainable manner. That view also allows that rundale, runrig and the northern English open fields might have emerged at different times as rural groups worked out their solutions to managing the land. In Flaherty's terms, this type of approach would be termed 'ecological-adaptive', reflecting the fact that it was both an agrarian and a social adaptation to environmental and economic conditions. Whelan in Ireland, Dodgshon in Scotland and Winchester in England have all stressed the particular conditions which gave rise to the farming systems which have been discussed here. Yet, any explanation also has to address the widespread occurrence of similar solutions to the problems of farming in areas of high rainfall on the north-west of Europe. Concluding his study of British field systems, Dodgshon argued that 'regional types in the sense of separately conceived and modelled systems did not exist.... Field systems were a response to the same basic set of problems. It was the way the different responses were combined and weighted that determine the regional varieties of form and function.'[101] This analysis of field systems, covering a rather larger area than that examined by Dodgshon on both sides of the Irish Sea, favours a similar conclusion. Instead of arguing for particular Irish, Scottish and northern English systems of agriculture, or for a single system covering those areas, it is suggested here that the farming systems arose out of similar problems faced in similar environments and constrained by common economic forces. Only that conclusion is sufficient to explain how farming systems which resemble one another so closely could have occurred so widely across Ireland and northern Britain.

Acknowledgements

This paper emerged from the discussions in the seminar 'Rundale – Runrig: Field Systems in Ireland, Scotland and Northern England' held at Queen's University Belfast in May 2017. We are grateful to all the contributors who participated there. Papers published in *Ulster Folklife* (2015) by participants in the Maynooth Round Table on Rundale (2010–17) have been extensively

[100] Yager, T., 'What was Rundale and Where did it come from?' *Béaloideas* 70 (2002), 153–186.
[101] Dodgshon, *op cit.,* 1980, 153–154.

drawn upon in compiling this article, in particular the contributions of Mark Gardiner, Mícheál Corduff, Liam Downey, Eamonn Slater, and Clodagh O'Malley Gannon. We gratefully acknowledge the understanding of various aspects of farming in previous decades shared with us by Séamus Ó Mongáin, Derry O'Donovan, Brendan Riordan, and Dermot Ruane. Críostóir Mac Cárthaigh kindly provided us with Figure 2.